

Y_3 is a q-valent radical of an isocyanate-reactive polymer after removal of the terminal amino, thiol or hydroxyl groups; and

* is the linkage point to the remainder of the polymer chain.

REMARKS

Claims 1-11 and 13-32 are pending in this application. Claims 24-26 and 28-31 are currently withdrawn. By this Amendment, claim 32 is added and is supported by original claims 1 and 12. Claim 12 is canceled. No new matter is added by this Amendment.

I. Rejections Under 35 U.S.C. §103(a)**A. Claims 1-17, 19-23 and 27**

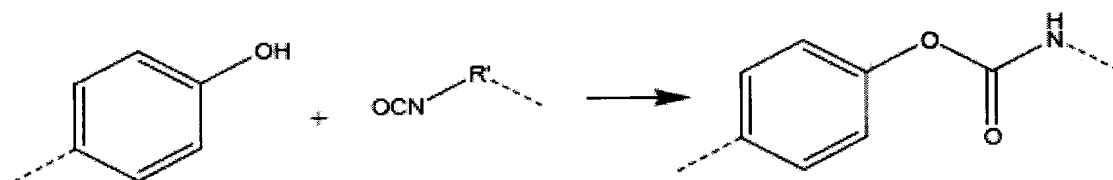
Claims 1-17, 19-23 and 27 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,740,192 ("Lu") in view of U.S. Patent No. 4,486,556 ("Kordomenos") and U.S. Patent Application Pub. No. 2002/0007003 ("Merz"). Applicants respectfully traverse this rejection.

The Patent Office alleges that the polyurethane composition described in Lu is prepared by reacting a polyisocyanate with a compound containing at least two active hydrogen groups followed by the addition of a compound having one or more epoxide groups and an active hydrogen. See Office Action, pages 3-4 (citing Lu, col. 7, lines 1-10). The Patent Office further alleges that the compound containing at least two active hydrogen groups may be (1) a polyhydroxyl compound prepared by the addition of products of alkylene oxides with phenol-formaldehyde resins ("Reaction 1") or (2) polyether polyol obtained by the polymerization of epoxides with hydrogen containing starter compounds such as 4,4'-dihydroxydiphenylpropane ("Reaction 2"). See Office Action, page 4 (citing Lu, col. 8, line 61 to col. 9, line 4 and col. 9, lines 34-38). Applicants respectfully disagree.

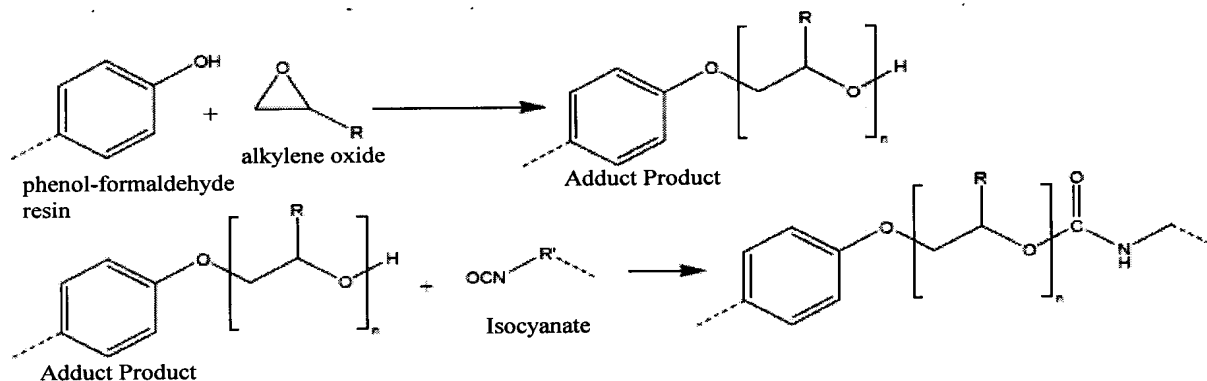
As discussed in the previous response, Lu does not disclose the impact strength modifier of amended claim 1. Specifically, Lu does not disclose an "aromatic structural element which is bound in the polymer chain via urethane groups." However, the Patent Office did not find this argument persuasive because, as discussed above, Lu allegedly describes that the epoxy-modified polyurethane resins can be produced using the addition

products of alkylene oxides with phenol-formaldehyde (i.e., novolac) resins. As such, the Patent Office assumes that the product of the alkylene oxide-novolac resin would have either an alkylene hydroxy terminal or a phenol terminal. Applicants respectfully submit that the Patent Office has mischaracterized the teachings of Lu, and provide the following explanation to refute the Patent Office's assumption.

Claim 1 recites that the polymer B has at least one aromatic structural element which is bound in the polymer chain via urethane groups. In other words, claim 1 requires a polymer with an aromatic ring bound directly by an oxygen atom (O) to a urethane group, as illustrated in the below reaction diagram.



However, Applicants submit that neither Reaction 1 nor Reaction 2 described in Lu embody at least one aromatic structural element bound in the polymer chain via urethane groups as recited in claim 1 and provide the following reaction diagram of Reaction 1 to illustrate this point:



As illustrated by the above reaction diagram, the phenol (i.e., the at least one aromatic structural element) is not bound in the polymer chain via a urethane group, but by a CH₂CHRO repeating polymer moiety. Thus, Reaction 1 of Lu does not describe claim 1.

Reaction 2 of Lu is analogous to the above reaction diagram for Reaction 1 of Lu. Because Reaction 2 describes reacting the polyether polyol with an epoxide before a further reaction with an isocyanate, the product of Reaction 2 contains an additional moiety (similar to the CH₂CHRO repeating polymer moiety for Reaction 1 of Lu) inserted in between the polyether polyol and the isocyanate, which prevents the polyether polyol from being bound to the polymer chain via a urethane group.

Furthermore, the examples and comparative examples described in the present specification further demonstrate that binding at least one aromatic structural element to the polymer chain via urethane groups is critical to compose a polymer with high strength and high impact strength. See page 30, lines 1-17 of the specification. As such, Lu would not have provided one of ordinary skill in the art with any reason or rationale to have produced a polymer with an aromatic structural unit bound to a polymer chain via urethane groups with any reasonable expectation of success.

Kordomenos and Merz do not remedy the deficiencies of Lu. Kordomenos was introduced as allegedly describing the reaction of product of the epoxide adduct (A) and Merz was introduced as allegedly describing a thixotropic agent. However, neither Kordomenos nor Merz describe polymer B or the limitations recited for polymer B in claim 1. As such, Kordomenos and Merz alone or in combination with Lu would not have provided one of ordinary skill in the art with any reason or rationale to have produced polymer B in claim 1.

B. Claim 18

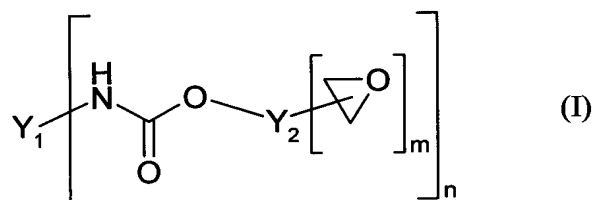
Claim 18 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lu in view of Kordomenos and Merz, and in further view of WO 02/48235 ("Kaji"). The Patent Office used U.S. Patent No. 6,903,180 as an English-language equivalent of Kaji. Applicants respectfully traverse this rejection.

For the above reasons, Lu, Kordomenos and Merz would not have rendered the present claims obvious. Kaji also does not remedy the deficiencies of these references. Kaji was merely introduced to describe dicyandiamide as a curing agent. However, Kaji does not describe a polymer with an aromatic structural unit bound to a polymer chain via urethane groups. As such, Lu, Kordomenos, Merz and Kaji alone or in combination, would not have provided one of ordinary skill in the art with any reason or rationale to have produced polymer B in claim 1.

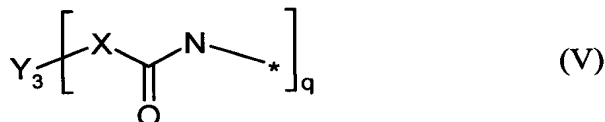
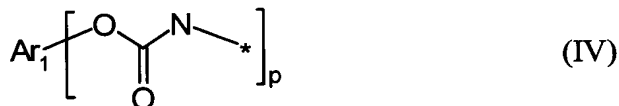
Withdrawal of this rejection is respectfully requested.

C. Claim 32

None of the cited references describe a composition comprising at least one epoxide adduct A having on average more than one epoxide group per molecule; at least one polymer B of the formula (I)



in which Y_1 is an n-valent radical of a linear or branched polyurethane prepolymer terminated with isocyanate groups after removal of the terminal isocyanate groups; Y_2 is a radical of an aliphatic, cycloaliphatic, aromatic or araliphatic epoxide containing a primary or secondary hydroxyl group after removal of the hydroxide and epoxide groups; n is 2, 3 or 4; m is 1, 2 or 3; and has at least one aromatic structural element which is bound in the polymer chain via urethane groups; at least one thixotropic agent C based on a urea derivative in a nondiffusing carrier material; and at least one curing agent D for epoxy resins which is activated by elevated temperature, wherein the polymer chain of the polymer B simultaneously has the structural elements of the formulae (IV) and (V)



in which p is 2, 3 or 4; q is 2, 3 or 4; X is S, O or NH; Ar₁ is a p-valent, optionally substituted, aryl radical; Y₃ is a q-valent radical of an isocyanate-reactive polymer after removal of the terminal amino, thiol or hydroxyl groups; and * is the linkage point to the remainder of the polymer chain. Claim 32 provides a more particular definition of the components for polymer B, none of which are described by Lu, Kordomenos, Merz and Kaji.

D. Conclusion

In view of the foregoing amendments and arguments, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejections.

II. Rejoinder

In view of the foregoing amendments and arguments, Applicants respectfully request that upon allowance of claims 1-11, 13-23, 27 and 32, claims 24-26 and 28-31 be rejoined with the present application and similarly allowed.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-11 and 13-32 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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